

**Agency for Healthcare Research and Quality
Patient Safety Indicators (PSIs)**

Log of Revisions to PSI Documentation and Software

Updated February 15, 2005

The following table summarizes all of the revisions made to the PSI software, software documentation, and the Guide to Patient Safety Indicators (Guide) document since the original release of the version 2.1 software and documents in March 2003. The table lists the revision number, the date the revision was made, the component affected by the change and a short summary of the changes that were made. For convenience and ease of use, the changes are listed in reverse chronological order with the most recent changes appearing first in the table. This log of revisions is current as of the date noted above.

| Revision number | Date | Component | Changes |
|------------------------|-------------------|---|--|
| 3a | February 15, 2005 | Software (SAS and SPSS), Software Documentation and Covariates document | Updated the coefficients used in the calculation of expected and risk-adjusted rates to the 2002 reference population. NOTE: The Guide to Patient Safety Indicators, Operating Room Procedure Codes, and Fiscal Year 2005 Coding Changes documents were not updated and Revision 3 remains the current version. |
| 3 | January 17, 2005 | Software (SAS and SPSS) and Guide | Modified documentation to reflect changes in indicators associated with ICD-9-CM coding updates for FY 2005 (effective 10-1-2004). See separate documentation on ICD-9 coding updates for specific details. ¹ |
| 3 | January 17, 2005 | Guide | <ol style="list-style-type: none"> 1. Updated the provider, area and population rates in Table 1 and Table 2 and the detailed evidence section using data from the 2002 HCUP SID files. 2. In the detailed evidence section, added a cross reference from each indicator description to the indicator's detailed definition in Appendix A. 3. Included Appendix A titles of detailed definitions in the Table of Contents. 4. Removed the Operating Room Procedure Codes from Appendix C and reorganized |

¹ "Updates to Version 2.1, Revision 3 – ICD-9-CM Coding Updates,"
http://www.qualityindicators.ahrq.gov/psi_download.htm

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| | | | the Appendices. The Operating Room Procedure Codes are now provided as a separate downloadable document. ² |
| 3 | January 17, 2005 | Software (SAS and SPSS) | <ol style="list-style-type: none"> 1. Added the 2003 census data (i.e., QICTY03.TXT) 2. Added optional data elements YEAR (year of patient discharge) and DQTR (calendar quarter of patient discharge) to the specifications of the input file. 3. Added new user control parameter YEARQTR to CONTROL_PSI.SAS and PSSPS1.SPS. The default setting for this parameter in the syntax is 0. If the data elements YEAR and DQTR are available in the input data file the parameter would be set to 1. <p>Note: If available, these data elements are used to implement a coding change to Postoperative Wound Dehiscence (PSI #14) that adds ICD-9-CM code 44.99 to the denominator for discharges occurring on or after 10/1/2004. However, ICD-9 code 44.99 will not be retained in the denominator if the data elements year and quarter of discharge are not available or if the user selects the option not to retain code 44.99 for purposes of trending over time.</p> |
| 3 | January 17, 2005 | Software Documentation (SAS and SPSS) | <ol style="list-style-type: none"> 1. Table 3 was amended to include the 2003 census data (i.e., QICTY03.TXT). 2. Added instructions for setting new user control parameter YEARQTR to CONTROL_PSI.SAS and PSSPS1.SPS. 3. Added descriptions of optional data elements YEAR (year of patient discharge) and DQTR (calendar quarter of patient discharge) to Table 4. |
| 2a | November 19, 2004 | Software (SAS) | Corrected syntax for the option to export program output of PSSASP2.SAS and PSSASP3.SAS to comma-delimited files that |

² "Operating Room Procedure Codes," http://www.qualityindicators.ahrq.gov/psi_download.htm

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| | | | can then be read by Excel. NOTE: The changes do not affect the SPSS syntax. |
| 2a | November 19, 2004 | Software (SAS and SPSS) | Updated zip files to exclude the QICTYAxx.TXT census files, which are not required for risk adjustment for the PSI module. |
| 2a | November 19, 2004 | Covariates | Revised to include additional columns (i.e. the number of covariates and the odds ratio) and to correct the covariate labels. NOTE: The changes do not affect the covariate values or the calculation of risk-adjusted rates. |
| 2 | October 22, 2004 | Guide | <ol style="list-style-type: none"> 1. Modified documentation to reflect changes in indicators associated with ICD-9-CM coding updates for FY 2004 (effective 10-1-2003). See separate documentation for specific details.³ 2. Changed syntax of "hospital-level" to "provider-level" throughout the documentation. 3. Added PSI number to each Indicator name. 4. Updated empirical results for Table 1, and limited contents to Provider-level PSIs. 5. Added Table 2, listing Area-level PSIs. 6. Added caption for Table 3, Indicators and Use of External Cause-of-Injury Codes. 7. Modified PSI #2 (death in low mortality DRGs). The indicator is reported as a single measure, but also stratified by type of DRG: adult medical, pediatric medical, adult surgical (with OR procedure), adult surgical (without OR procedure), pediatric surgical (with OR procedure), pediatric surgical (without OR procedure), obstetric and psychiatric. A list of low mortality DRGs by type is included PSI Guide. <p>Impact: Among the low mortality DRGs, about 25% of the discharges and 60% of</p> |

³ "Updates to Version 2.1, Revision 2 – ICD-9-CM Coding Updates,"
http://www.qualityindicators.ahrq.gov/psi_archive.htm

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| | | | <p>the deaths are “adult medical” DRGs. Psychiatric DRGs also have a higher share of deaths (10%) than discharges (6%). Death among the other DRG types is very rare (0.1% or less). Few low mortality surgical DRGs do not have an operating room procedure, so the adult or pediatric surgical DRG (without OR procedure) will generally be missing or zero for most hospitals.</p> <p>8. Modified PSI #14, Postoperative Wound Dehiscence, to include only OR procedures in the definition of abdominopelvic surgery.</p> <p>Impact: Small (less than 1%) decrease in the denominator and resulting small increase in the rate due to exclusion of a low-risk procedure.</p> <p>9. Modified PSI #17, Birth Trauma, to exclude preterm infants with subdural or cerebral hemorrhage or osteogenesis imperfecta infants with injury to skeleton from the numerator only. NOTE: The infants remain in the population at risk for other types of birth trauma.</p> <p>Impact: Small (less than 1%) increase in the denominator and resulting small decrease or no impact in the rate (i.e. the risk of other types of birth trauma for these two populations is less than or no different than for other births).</p> <p>10. Added three new Indicators #27-29, to include third-degree lacerations for each of three types of delivery: Vaginal with and without instruments, and Cesarean.</p> <p>Impact: The rate for OB Trauma is generally 5-10% higher when including 3rd degree lacerations</p> <p>11. Limited the surgical DRG inclusion criteria to major OR procedures for PSI #1, 8-13, all of which deal with postoperative illness or injury.</p> |

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| | | | <p>Impact: Medium (1-4%) decrease in the denominator. The impact on the rate varies by indicator. PSIs 1, 8 and 9 have a medium (1-3%) increase in the rate. PSIs 10 and 12 have a small (less than 1%) decrease in the rate. PSIs 11 and 13 have a medium (3-4%) decrease in the rate.</p> <p>12. Modified PSIs #1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15. 16 to exclude discharges with a PSI-defining secondary diagnosis and a different PSI-defining principal diagnosis (but within the same PSI definition).</p> <p>Impact: Small (less than 1%) decrease in the denominator. The impact on the rate varies by indicator. PSIs 1, 3, 6, 7, 8, 10, 11, 13 and 16 have a small (less than 1%) increase in the rate. PSI 9 has a small (less than 1%) decrease in the rate. PSI 15 has a medium (2-3%) decrease in the rate. PSIs 5 and 12 have a large (5-9%) decrease in the rate.</p> <p>13. Modified PSIs #8, 9, 11, 12 to exclude discharges where the only OR procedure is a PSI-related procedure.</p> <p>Impact: Small (less than 1%) decrease in the denominator. The impact on the rate varies by indicator. PSI 11 has a small (less than 1%) decrease in the rate. PSI 9 has a medium (1-2%) decrease in the rate. PSIs 8 and 12 have a large (15-65%) decrease in the rate.</p> <p>14. Modified PSIs #8, 9, 11, 12, 14 to exclude discharges where a PSI-related procedure precedes the denominator-defining OR procedure.</p> <p>Impact: Small (less than 1%) decrease in the denominator. The impact on the rate varies by indicator. PSI 9 has a large (65-70%) increase in the rate. PSIs 11 and 12 have a small (less than 1%) decrease in the rate. PSI 8 has a medium (3-4%) decrease in the rate. PSI 14 has a large (8-9%) decrease in the rate.</p> |

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| | | | <p>15. Modified Area level PSI #24, Postoperative Wound Dehiscence, to drop the requirement that the wound reclosure occurs in a discharge with a procedure code of abdominopelvic surgery.</p> <p>Impact: Numerator increases by about 40%.</p> <p>16. Added code 72.79 to the definition of instrument-assisted delivery in PSI #18, 19.</p> <p>Impact: Transfers about 33% of the denominator from PSI 19 to PSI 18. Because the OB Trauma rate for these cases is higher than average for PSI 19 and lower than average for PSI 18, and because the OB Trauma rate for PSI 19 is lower than PSI 18, the rate for both indicators decreases by 3-10%.</p> |
| 2 | October 22, 2004 | Software (SAS and SPSS) | <ol style="list-style-type: none"> 1. Implemented syntax changes associated with ICD-9-CM coding updates from FY 2004 (effective 10-1-2003). See separate documentation on ICD-9 coding updates for specific details. 2. Implemented all syntax changes required to implement the indicator modifications (noted above under Guide) and incorporated the related documentation in the Software manuals. 3. Modified the age, DRG and co morbidity aggregations used in the risk-adjustment to reflect the new rates and to group the DRGs by MDC (including an MDC-specific other category) 4. Added the calculation and reporting of the expected rate at the stratification level selected by the user. The SAS (PSSASP3.SAS) and SPSS (PSSPSP3.SPS) software now calculates the risk-adjusted rate, the expected rate and the smoothed rate. The rates are saved in the output file. The user also has the option to print the rates or save the rates in a comma-delimited ASCII file. |

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| 2 | October 22, 2004 | Software (SAS) | Inserted "PS" in format names for age, sex, DRG and co morbidity aggregations in SAS programs to distinguish these formats from similarly named formats used by other indicator software. |
| 1 | May 28, 2003 | Guide | <ol style="list-style-type: none"> 1. Updated empirical results for Table 1. 2. Corrected error in Failure to Rescue Sepsis (denominator, exclusion criteria). Corrected syntax excludes patients with a length of stay less than 4 days. |
| 1 | May 28, 2003 | Software (SAS) | <ol style="list-style-type: none"> 1. Corrected error in Failure to Rescue Sepsis (denominator, exclusion criteria). Corrected syntax excludes patients with a length of stay less than 4 days. 2. Made minor syntax change to pathname syntax to ease use. |
| 1 | May 28, 2003 | Software Documentation (SAS) | Added instructions for obtaining confidence interval module. |
| 1 | May 28, 2003 | Software reference files (SAS) | Parameter files: Updated the parameter reference files. |
| 1 | May 28, 2003 | Software and Documentation (SPSS) | Released SPSS software which incorporates all changes noted for SAS. |